

Peneder, Michael; Resch, Andreas

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Schumpeter and Venture Finance. Radical Theorist, Broke Investor and Enigmatic Teacher

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E-mail address: Michael.Peneder@wifo.ac.at, andreas.resch@wu.ac.at
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Schumpeter and venture finance: radical theorist, broke investor and enigmatic teacher

Michael Peneder*, Andreas Resch**

December 16, 2014

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Schumpeter's relation to venture finance constitutes a fascinating yet so far unacknowledged chapter of his biography and financial history. Presenting new historical evidence and pointing out connections that have so far escaped attention, we first discuss Schumpeter's venture theory of money and banking, then his personal history as a broke investor in Vienna, and finally his influence on the emerging venture industry during his later years at Harvard. We show how the theoretical vision inspired his failed effort as a venture investor in the 1920s, and provided a powerful intellectual frame for the later development of venture finance in the 1940s.

JEL Codes: B15, B52, N20, N80, O16

Key Words: Entrepreneurial finance, Venture Capital, financial history, money and banking, Schumpeter, Hilferding

* Austrian Institute of Economic Research, Arsenal Obj. 20, A-1030 Vienna, Austria, Tel.: + 43-1-798 26 01 480; E-mail: Michael.Peneder@wifo.ac.at.

** Vienna University of Economics and Business, Institute for Economic and Social History, Welthandelsplatz 1, Building D4, A-1010 Vienna, Austria, Tel.: +43 1 31336 5145, Email: andreas.resch@wu.ac.at.

1 Introduction

Venture finance occupied an enigmatic and much underrated place in Schumpeter's intellectual and personal life. This contribution discusses his radical vision as a *theorist*, *investor*, and *teacher* of venture finance, bringing to light new historical material and pointing at connections that have so far escaped the attention of both Schumpeterian economists and scholars of venture finance. The findings are based, among others, on research at the Austrian State Archives, the Municipal and Provincial Archives of Vienna as well as the Schumpeter Collection at the Harvard University Archives and the Georges F. Doriot Collection at the Harvard Business School.

To begin with, Schumpeter the *venture theorist* placed a unique emphasis on entrepreneurial finance, which he claimed to be the constitutive and foremost function of the money and capital markets, where credit and interest are created by and feed on the phenomenon of innovation-driven development. When money was generally accepted to be a mere 'veil', affecting only the price level but without a lasting impact on real production, Schumpeter connected the monetary system to innovation, economic growth, and crises. He showed that beyond the mere facilitation of exchange, venture finance can enable and its lack obstruct different trajectories of development. Thereby, he explicitly related the temporary entrepreneurial rent from innovation to Hilferding's concept of the 'promoter's profit', which is the capitalised gains from founding, expanding, or restructuring a business and realised by selling new shares. It bears much similarity to what we today broadly call private equity, and with particular regard to early stage investments, venture capital.

Schumpeter actively pursued such profits during his brief and unfortunate history as a *venture investor*. After WWI, when still in Vienna, he invested on a grand scale in the foundation of new firms. Given the poor condition of industrial sites after years of war economy the economic rationale appeared sound, but the financial scheme, timing and practical execution were not. In addition to spending his own wealth, he borrowed heavily from his privileged bank account, repaying short-term loans as the value of assets increased, and he raised considerable funds from third parties. Having built up large leverage, he was unable to refinance short-term loans when Austria was hit with its major banking crisis in 1924. As the factories failed before they could produce a significant cash flow, Schumpeter had to learn the perils of leverage and importance of equity in venture finance the very hard way.

Finally, we meet Schumpeter the *teacher of venture finance*, who escaped from social degradation in Vienna through a successful return to his academic work. During his time as a celebrated professor of economic theory at Harvard University, the Boston area became the birthplace of the modern venture capital industry. Although Schumpeter was not directly involved, his venture theory contributed an intellectual stimulus to some of the creative new leaders in finance. For example, at the Harvard Business School, Georges Doriot, the acknowledged 'father' of institutional venture capital, displayed a profound affinity to Schumpeterian ideas. Another example is David Rockefeller, who studied under

Schumpeter, was a co-founder of the family's pioneering venture capital investment branch (run by his brother Laurance) and chose a career as 'creative banker' at Chase Manhattan, for which he repeatedly acknowledged Schumpeter's influence.

This paper aims to integrate the three different aspects of Schumpeter's contribution to the rise of venture finance, emphasizing the changing historical context of the theories, of the theorist, and of the practitioners. We discuss his radical venture theory in Section 2, account for his personal history as a broke investor in Section 3, then turn to his intellectual influence during his years at Harvard in Section 4, and conclude in the final Section 5.

2 The venture theory of finance

2.1 Short synopsis

What we depict as Schumpeter's 'venture theory' of finance starts from the abstract benchmark of a stationary economy in equilibrium, characterised by perfect competition and zero entrepreneurial profits. This *circular flow* is not capable of explaining the emergence of new enterprises or innovations, nor does it aim for it. Firms are already in operation, technology and preferences are exogenous and given. Money and credit are practical devices to ease transactions, but stripped down to its bare logic, the economy can in principle do without them by a synchronisation of expenditures and cash flows. Consequently, the *quantity theory* applies and money is a mere 'veil', which affects price levels but no real economic magnitudes and relationships. In a stationary equilibrium, the comprehensive system of mutual interdependencies can be explained without reference to money.¹

Schumpeter then contrasted the stationary system with his dynamic vision of economic development, characterised by qualitative change and growth. Only here does a distinct import of the monetary system on the real economy arise from the particular need to pre-finance innovation. Whereas an ongoing stationary system can use its current returns to self-finance its expenditures and maintain production, the new entrepreneurial ventures cannot by themselves provide the means of payment to get started. New ventures need an investor, who trusts (lat. *credit*) the entrepreneur's vision and capacity for redemption, and who provides capital, which Schumpeter defines as the purchasing power to control needed means of production. Such venture finance fuels development by "enabling the entrepreneur to withdraw the producers' goods which he needs from their previous employments, by exercising a demand for them, and thereby to force the economic system into new channels" (Schumpeter, 1911/1934, p. 106). The real and the monetary side of the economy thus become inextricably interwoven.

For Schumpeter, this initial credit kick-starts all further capital formation from retained earnings, dividends or interest paid. Entrepreneurs with sufficient accumulated wealth can

¹Schumpeter (1954, p. 1024) points at the equilibrium system of Walras, where relative prices and values are expressed in terms of the *numeraire*, but *monnaie* is a mere means of exchange and storage of value, which anchors the absolute price level.

carry out this function of the capitalist themselves, others must seek external sources. Wealth accumulates from surplus income, and within Schumpeter's strict assumptions these can only stem from entrepreneurial profits, i.e. from innovations broadly defined. Recursive reasoning leads back to the situation in which entrepreneurs aim to break out of the circular flow, but no (sufficient) accumulated surplus income is available. The advance payment must then originate in the *ad hoc* creation of purchasing power, i.e. bank credit.

The *ad hoc* creation of purchasing power through credit links the individual venture with the overall money supply and hence has macroeconomic implications. Consistent with the quantity theory, the additional money in circulation raises prices. In the case of credit to the entrepreneur, it first raises the price of productive services, thus withdrawing goods from their previous use through *forced saving*.² But this credit inflation is only temporary, since the entrepreneur must redeem the advances, and – if the venture is successful – will also increase the supply of goods or services in the real economy. Unlike credit for consumptive purposes, “there is no credit inflation at all in this case – rather deflation – but only a non-synchronous appearance of purchasing power and of the commodities corresponding to it” (ibid., p. 110). After redemption, the interest and entrepreneurial profit remain in circulation.

Banks only lend money if they expect the funded projects to be profitable. Only then will their creation of additional purchasing power not raise inflation, but be (more than) balanced by the increasing stock of goods and services. Conversely, if ventures fail, they raise the demand for productive services without an according increase in production, affecting prices in the same way as consumptive credit. While the associated loss must in principle discipline the lending practices of individual banks, the banking system altogether can temporarily lift this restriction, if driven by the joint anticipation of further price increases banks re-finance their losses amongst themselves through further creation of bank money. A process of *cumulative causation* aggravates the situation and, if uninterrupted by legal restrictions and public authorities, such as the central banks, can generate financial cycles, hyperinflation and correcting crises, including the notorious waves of bank failures.

In short, Schumpeter's venture theory of finance was a radical departure from the dominant view, especially in the context of heated debates about the causes of inflation and the virtues of a metal-based monetary system. Embedding his microeconomic analysis of entrepreneurial finance in a macroeconomic theory of credit expansion and contraction, the effect of credit on prices depends on whether the additional money in circulation is used for productive purposes, and whether the ventures succeed in increasing the supply of saleable goods and services. Schumpeter thereby identified venture finance as the vehicle through which investors simultaneously enable economic development and generate instability.³

²Hayek (1932) sketches the history of the idea of forced savings from Bentham and Thornton to Wicksell, Mises and Schumpeter. Schumpeter (1911/1934, p. 108f; 1954, p. 724, 1115) awards the expression to Mises and acknowledges Bentham, but gives priority to the intellectual lineage of Thornton, Malthus and Wicksell.

³Aware of its weighty implications, Schumpeter (1934, p. 95) pointed out that his considerations lead

2.2 Heterodox sources

Schumpeter developed his monetary theory from a thorough knowledge of the history of economic thought. It is itself a creative combination of existing ideas that were often obscure – either condemned or simply ignored by classical economists and most of his contemporaries. Its originality resides in his ability to pick neglected ideas from earlier authors and integrate them into his own theory.⁴ In doing so he was strikingly attracted to notorious renegades of the orthodox and accepted view. While he avoided attaching himself to incomplete arguments or political agendas, Schumpeter understood that these pointed out weaknesses in the received theory, which he felt could only be solved within his own dynamic framework.

A few examples may illustrate the varied soil from which he harvested different elements. For instance, an early understanding of the cash-in-advance problem can be traced to *William Potter* (1650). Another example is the infamous financial adventurer *John Law* (1671-1720), who envisaged a banking system based on paper money and no longer constrained by the availability of specie. Within the context of an underdeveloped Scottish economy, Law reasoned that out of equilibrium a change in the money supply could mobilise idle resources and therefore have a real impact on production, not just prices. This perspective naturally resonated with Schumpeter, whose creative entrepreneur provided for the perpetual emergence of new opportunities and made disequilibrium a general characteristic of the economic process.⁵ In sharp contrast to the quantity theory, Law also argued that an increase in purchasing power could be managed through the issue of paper money backed by assets such as land or (later as French finance minister) the prospect of future profits from colonial ventures. Schumpeter was aware of deficiencies in Law's scheme and the danger of insatiable demands by the government, which resulted in the excessive issue of money and hyperinflation. However, he also appreciated the theoretical possibilities Law had opened.⁶

“first to the heresy that money, and then to the second heresy that also other means of payment, perform an essential function, hence that processes in terms of means of payment are not merely reflexes of processes in terms of goods. In every possible strain, with rare unanimity, even with impatience and moral and intellectual indignation, a very long line of theorists have assured us of the opposite.”

⁴As Kurz (2013, p. 2) argues: “while almost each and every idea Schumpeter put forward had its precursors, it is the particular reconfiguration of these ideas and their blending that matters and that defines the specificity and novelty of his contributions.”

⁵Potter was a non-metallist and forerunner of British land bank schemes, who believed that an increase in the supply of money could proportionally increase spending and production. He probably influenced John Law, who argued that an increase in the money supply would raise the amount of spending and production “as this Addition to the Money, will employ the People are now Idle, and these now employ'd to more Advantage: So the Product will be encreas'd, and Manufacture advance'd” (Law, 1705, p. 42). Schumpeter (1954, p. 283f; 294) considers both Potter and Law related to “Becher's Principle”, according to which people's expenditures on consumption are the prime mover of the economy. He named it after the mercantilist Johann Joachim Becher (1635-82), who – fitting our special cast of characters – had to leave Vienna in flight from his creditors.

⁶Schumpeter's (1954, p. 294f) praise is outright flamboyant: “John Law ..., I have always felt, is in a

Henry Thornton (1760-1815) was another early writer who withstood the classical adherence to the quantity theory and argued that credit expansion could have real effects on output. A respected banker with practical experience, Thornton (1802) understood better than his contemporary writers the nature and extent of the paper credit revolution (Murphy, 2009, p. 189ff). He started with a bold statement of what Wicksell (1898, p.105) and Schumpeter (1954, p. 717) termed the *credit theory of money*, claiming that money essentially originates in rudimentary forms of commercial credit and the according need of a mutually accepted measure of value for clearing commercial transactions.⁷ He further explained how credit expands the money supply, applied the idea of the velocity of money, investigated the combined effect of supply and demand in goods and money markets, anticipated the doctrine of forced savings and invoked a fundamental equilibrium condition between the monetary rate of interest and the rate of mercantile profit.⁸ He understood that this equilibrium is unstable, pointed at a process of cumulative causation, and arrived at the conclusion that, “although additional industry will be one effect of an extraordinary emission of paper, a rise in the cost of articles will be another” (ibid., p. 237).⁹

Thornton remained in the shadow of David Ricardo, whose doctrine became the canon of monetary theory, while his own ideas faded into oblivion. It took almost a century before they reappeared, unacknowledged and possibly re-discovered independently (Arnon, 2011, p. 365), but in any case more fully developed in the work of Knut Wicksell. Schumpeter held Thornton in especially high esteem.¹⁰ We find their kinship in the credit theory of money, the implied endogeneity of the monetary system and real production, as well as in their shared attitude towards the quantity theory. Both are critical of the latter,

class by himself. ... He worked out the economics of his projects with a brilliance and, yes, profundity, which places him in the front rank of monetary theorists of all times”.

⁷“Commercial credit may be defined to be that confidence which subsists among commercial men in respect to their mercantile affairs. ... Even in that early and rude state of society, in which neither bills nor money are as yet known, it may be assumed, that if there be commerce, a certain degree of commercial credit will also subsist. ... it must happen, even in the infancy of society, that one man will deliver property to his neighbour without receiveing, on the spot, the equivalent which is agreed to be given in return. It will occasionally be the interest of the one party thus to wait the other’s convenience. ... This commercial credit is the foundation of paper credit” (Thornton, 1802/1939, p. 75f). Among later proponents of a ‘credit theory of money,’ see e.g. Macleod (1866) and Hahn (1924), both only recently appreciated e.g. by Skaggs (1998, 2003) and Hagemann (2010). Arnon (2011) further identifies it with the work of e.g. Bagehot (1873), Wicksell (1898), or John Hicks, whereas Messori (2003) links it with Schumpeter’s theory of cycles.

⁸According to Schumpeter (1954, p. 721) he already implied the marginalist principle “that the loan rate (money interest) tends to equal expected marginal profits of investment (marginal efficiency of capital)”.

⁹Thornton finally calls for the Bank of England to take responsibility for managing the monetary system in the public interest and prescribes a rule of prudent restriction: In no case, should the Bank of England “materially diminish the sum in circulation, but to let it vibrate only within certain limits; to afford a slow and cautious extension of it, as the general trade of the kingdom enlarges itself; to allow of some special, though temporary, encrease in the event of any extraordinary alarm or difficulty” (Thornton, 1802, p. 259).

¹⁰“But Henry Thornton ... must be saluted at once. His Enquiry ... is an amazing performance ... it anticipated in some points the analytic developments of a century to come. No other performance of the period will bear comparison with it” (Schumpeter, 1954, p. 689).

considering it overly simplistic and misleading, but also accepting its validity in the long-term, if resources were fully employed. They share a profound concern about the perils of inflation, but are equally difficult to categorise with regard to the ideological debates on the monetary policy of their times.¹¹

2.3 2.3 Reasons for contempt

Schumpeter faced much opposition to, and even worse, indifference towards his monetary theory. To some extent, this was due to his radical departure from the received canon. However, it can also be attributed to certain peculiarities of his own writings. First and foremost, Schumpeter's monetary theory emerges from and can only be understood jointly with his theory of innovation and development (Tichy, 1984; Peneder, 2012). The concept of the *creative entrepreneur* is his specific pivot. Regarding innovation as the only pure (i.e. essential or primary) cause of profit, he deliberately restricted his argument to one specific form of opportunity-seeking behaviour. His way of reasoning resembles the reductionism of the formal theoretical models, which he greatly admired. However, by not applying the mathematical apparatus himself, he did not make all his assumptions sufficiently explicit. Many of his contemporary peers, most notably Böhm-Bawerk, were deeply upset by his seemingly frivolous denial of the relevance of phenomena of obvious empirical importance, such as time preferences, capital accumulation in non-innovating firms, and consumer credit and savings.¹² Schumpeter stressed that he had followed his teacher in considering entrepreneurial profit to be the origin of a price *agio*, part of which can be paid as interest to creditors. However, by accepting only endogenous innovation as the source of entrepreneurial profit, he postulated the non-existence of interest for productive purposes in the stationary economy, which Böhm-Bawerk fiercely rejected. In an engaging intellectual debate¹³, both failed to find a common interpretation of their differences. Schumpeter never revised his position, but in his unfinished book on banking and money he significantly downplayed this point. Mentioning it only briefly, he took care to emphasise that, even in the circular flow, savings together with interest for consumptive purposes can contribute to growth through the steady expansion of the means for production (Schumpeter, 1970, p.

¹¹We cannot ascertain whether Schumpeter discovered these ideas first by reading Thornton or the later work of Wicksell. In his earliest work Schumpeter generally provided very few references and mentions neither Henry Thornton nor Wicksell. A first reference to Henry Thornton appears in Schumpeter (1917/1918, p. 704), which is many years before Hayek (1939) contributed much to his later prominence. Conversely, Wicksell had studied with Carl Menger in Vienna in 1887. His *Geldzins und Güterpreise* was published in German in 1898, but only first translated into English in 1936 (though a brief English summary appeared in Wicksell, 1906).

¹²Schumpeter never denied the role of savings from abstaining consumption out of regular income, but considered them of secondary importance to his theory of development. Similarly, he acknowledged that interest reflects different time preferences in the case of consumer credit. However, in his view these functions did not explain the essential characteristics of capitalist development.

¹³See Böhm-Bawerk (1913a, b) and Schumpeter (1913) for the original debate; but also e.g. Hahn (1924, p. 127, fn 115) for a brief comment and Kurz (2012) for a recent analysis of their differences.

114, 118). Apparently he agreed with his former student Paul Samuelson (1943), who defended the logical consistency of Schumpeter's argument, but also considered it dispensable for his overall theory.¹⁴

Another difficulty with Schumpeter's reception, in particular for modern readers, can be found in his tendency to cast his theory with personalised characters, such as the 'entrepreneur' or the 'banker'. Both represent the agents of change: the entrepreneur is the initial driver of development, while the banker is the 'ephor', who "makes possible the carrying out of new combinations" (Schumpeter, 1934, p. 74). Like a playwright, he gave much deliberation to casting the lead roles. However, one must understand that these served as idealised, abstract figures representing particular functions in order to explain the economic system. These can be exercised by different or the same persons, just as capital is not restricted to external sources of finance, but also comprises own wealth.

One consequence was that the early Schumpeter did not consider the difference between foreign and own capital to affect its principal economic function of allocating purchasing power to the entrepreneur. Only in his later work did Schumpeter (1942) discuss the advantage of large firms in terms of their greater resources for self-financed research activities, thus acknowledging the benefits of own equity in the presence of capital market frictions. However, from a contemporary perspective and especially in the context of financing innovation, his emphasis on credit and banking, while turning a blind eye to the specific role and importance of equity, deserves some additional reflections.

Let us first turn to economic history and recall that unlike other countries, in Austria and Germany banks played an important role in providing long-term corporate financing.¹⁵ The large universal banks, in particular, entertained close and manifold ties with industry, simultaneously combining commercial, investment and brokerage services, in addition to their traditional lending operations. Since the boom in incorporations of the late 1890s, the larger banks underwrote corporate bonds and equity issues, held industrial shares and exercised proxy voting rights for those who deposited bearer shares with them. This provided them with powerful representation on the company boards, reduced informational asymmetries, and thereby also affected their readiness to provide long-term credit. However, apart from this institutional specificity, capital needs generally tended to be low during the early phases of industrialization¹⁶. Start-up finance was mainly covered by individuals, family, and neighbours, whereas retained earnings paid for ongoing investments and growth, and the family-held firms typically were reluctant to dilute ownership by outside funds. When the railway boom and rise of 'heavy' industries later increased the demand for external fi-

¹⁴"It is clear that Professor Schumpeter's theory of a zero rate of interest in a stationary circular flow economy could be dispensed with, and no great harm would be done to his theory of the cycle or of development. Instead of tending to rebound to a zero rate, the interest rate would tend, after a period of innovation, to return to some other rate, alleged to represent an intrinsic rate of time preference or impatience, or any other broad margin which the ingenuity of an economist can devise" (Samuelson, 1943, p. 61).

¹⁵See, e.g., Carosso (1970), Fohlin (2007), Franks et al. (2007), or Murphy (2007).

¹⁶Frost (1954, p. 184); Kindleberger (1984, p. 191ff)

nance, Baskin and Miranti (1997, p. 15) maintain that “[t]raditionally, it has been easier to establish viable markets for debt, rather than equity, securities. In the past, corporations have mainly relied on borrowing to raise the bulk of funds from outsiders. The perfection of large-scale impersonal markets in common stock has been only a comparatively recent development.”

Second, we should turn to the history of economic thought, where credit had been a popular theme among German and Austrian economists. Of the many influences on Schumpeter’s monetary theory, Streissler (1994, 2000) identifies Karl Knies¹⁷ and Rudolf Hilferding¹⁸, who both largely used the term ‘credit’ synonymously with capital and referred to the ‘banker’ as the capitalist, or financier, more generally.¹⁹ Hilferding, in particular, was an important influence on Schumpeter. Both attended Böhm-Bawerk’s famous 1905 seminar in Vienna, were well-acquainted and developed their ideas within a similar intellectual environment. According to Michaelides and Milios (2005, p. 101), both had attained “a cordial friendship” and by 1905 already conceived the fundamental ideas they published in 1910 and 1911.²⁰

Of particular relevance to our purpose is Hilferding’s concept of the *promoter’s profit* (“Gründergewinn”). These are capital gains from the founding, expanding or restructuring of a business that are realised by selling new shares. This corresponds in many respects to what we now call private equity, or more specifically with regard to start-ups, venture capital. Hilferding (1910, p. 109, 112) stands out in considering such a disbursement of new shares, privately held by the promoters of a new (or restructured) firm, as a source of income *sui generis*. It is not only fundamentally distinct from loans, which earn interest, but also from the public trade of equity on the stock exchange, which implies that arbitrage applies and the share yields tend to equal the risk-adjusted money rate of interest. Moreover, the gains from the public trade have no direct impact on the further accumulation of productive capital, but rather tend to stay within the realm of speculation. In contrast, shares that are privately held may temporarily eschew arbitrage and earn a promoter’s profit in addition to regular interest.²¹ While the new shares enter the arena of speculation on the public market,

¹⁷In Heidelberg, Schumpeter’s teachers Böhm-Bawerk and Wieser had attended the seminar of Karl Knies, who “lumps stock holders, bond holders, and other creditors together under the portmanteau caption ‘credit’” (Streissler, 1994, p. 25; But Knies opposed credit-based theories of money, especially raging against Law and Macleod (Knies, 1876, p. 75ff). In turn, Schumpeter (1954, p. 1081) laconically resumed that “Karl Knies’s *Geld und Credit* . . . , important though it is in other respects, added but little to the topics covered by its title.”

¹⁸Streissler (1994, p. 31) argues that Hilferding, “continuing the line suggested by Knies, explicitly considers common stock as a form of credit created by the banks”. Schumpeter (1954, p. 881) praised him as “the most famous performance of the neo-Marxist group”, but was not impressed by his monetary theory (ibid., p. 725).

¹⁹Kindleberger’s (1984, p. 211) puzzlement about a similarly use of the term ‘credit’ by the historian Horst Blumberg suggests that this practice may have been more common among German scholars.

²⁰For a very comprehensive and thorough monograph on Hilferding, see Greitens (2012); for recent shorter articles e.g. Kurz (2011) and Streissler (2000).

²¹That is, until “they are then evened out by the flow of newly accumulated quantities of surplus value

the returns on their initial issue are typically used for further productive investments.²² In accordance with his Neo-Marxist perspective, the promoter's profit was a powerful source of accumulation, fostering the concentration of industrial capital in the hands of ever more powerful financial organisations by the simultaneous use of loan and equity instruments.²³

Schumpeter (1911, p. 137) explicitly absorbed the promoter's profit into his own theory. Referring to the temporary entrepreneurial rents from innovation, he states that "profit as here conceived is the main element of the phenomenon which is described as promoter's profit". He remained, however, more guarded about its ultimate distribution: "If, during the founding of a business, everything was to proceed correctly and with ideal perfection and foresight on all sides, the profit would be what remained in the founder's hands. Of course, in practice it is quite different" (ibid.). In other words, with perfect capital markets, the entrepreneurs can raise loans and pay interest, but keep the full entrepreneurial rent. However, when information is not perfect and credit is thus constrained, entrepreneurs must raise long-term capital by giving equity to external 'promoters', who also participate in the surplus profits. Like Hilferding, Schumpeter emphasised that such a profit is not confined to the founding of a start-up business, but extends to new ventures in existing firms, where people "continually embark upon new enterprises" (ibid., p. 138). But in contrast to Hilferding, the consequent entrepreneurial surplus also contributes to the accumulation of capital within the firm and thereby strengthens its self-financing capacity. While both production and finance critically depend on each other and must co-operate to generate entrepreneurial profits, they are also systematically in conflict about its later distribution.

Schumpeter generally considered the choice among particular financing instruments a 'technical' question, in which he had little theoretical interest. Still, it would be wrong to infer that he considered credit a superior instrument from the perspective of the individual venture. One of his rare discussions of actual financing instruments demonstrates the opposite:

"[I]f it is true that long-term enterprises are financed by short-term credit every entrepreneur and every bank will try for obvious reasons to exchange this basis as soon as possible for a more permanent one, indeed will regard it as an achievement if the first stage can be completely jumped in an individual case. In practice this approximately coincides with replacing purchasing power created *ad hoc* by that existing already" ... "In the first place, *shares* or *bonds* are created and their amounts are *credited* to the enterprise, which means that banking resources still finance the enterprise. Then these shares and bonds are disposed of and gradually are paid for ... by the subscribers out of existing supplies of pur-

into those spheres which have the highest promoter's profit" (Hilferding, 1910, p. 188).

²²Hilferding (1910/1981, p. 142): "This profit does not flow ... in the way dividends are paid to shareholders, in the form of fragmented annual payments, but is capitalized as promoter's profit, and received in the form of money, ... which can immediately function as new capital."

²³"Thus every new enterprise pays, from the very outset, a tribute to its promoters, who have done nothing for it and need never have any dealings with it. It is a process which is always concentrating large new sums of money in the hands of the big money powers" (ibid.).

chasing power or reserves or savings. Thus, as it may be expressed, they are resorbed by the community's savings" (Schumpeter, 1911/1934, p. 111; italics added).

To summarise, only the *ad hoc* creation of purchasing power through credit increases the money supply and hence makes it endogenous to economic development. In this regard, Schumpeter indeed gave priority to credit over equity, because it integrates the monetary and the production side, the entrepreneurial venture with the macroeconomic effects of inflation and deflation, business cycles and crises. Nevertheless, his understanding of venture finance clearly encompassed both loan and equity instruments. Schumpeter's banker represents the general function of an investor, who entrusts (or 'credits') purchasing power to entrepreneurial ventures. Yet different from modern venture capital, it did not embrace e.g. the role of an active investor, who adds value to the operation by providing business advice to inexperienced entrepreneurs (Gompers and Lerner, 2004; Kenney, 2014).

The promoter's profit originates in the temporary entrepreneurial rents from innovation, which are capitalised by the issue of new shares. Hilferding and Schumpeter emphasised the inherent conflict between entrepreneurs and investors over corporate control and the according distribution of the surplus. Thereby, both acknowledged the general existence of capital market imperfections due to informational problems, which further exacerbates the profound uncertainty in venture finance. Hilferding argued that the financial organisations gradually gain control over industrial capital via the accumulation of promoter's profits. In contrast, Schumpeter (1911) stressed that external finance enables new ventures and the accumulation of capital among entrepreneurs *and* outside investors. In a sense, the contrary ideological views of the two friends still represent the opposite political attitudes towards modern venture capital. The latter aims to appease concerns about expropriation by building a reputation for not taking over the enterprise unless operations go seriously wrong.

Schumpeter understood the advantages of equity for individual ventures. But while long-term finance is what entrepreneurs need and strive for, short-term loans may often be all they can get. This disparity describes the fundamental problem of entrepreneurial finance.²⁴ As his student Minsky (1990, p. 52) explained, "[t]hose who finance a Schumpeterian innovator always have novel problems in structuring the financing."²⁵ In the following section, we will see how Schumpeter made that painful experience as a failed venture investor himself. But such difficulties can also create opportunities for innovations in the financial sector (Perez, 2002). The emergence of modern venture capital within Schumpeter's close environment at Cambridge MA is a striking example, to which we will then turn in Section 4.

²⁴In the 1930s it gained wider recognition as the "Macmillan Gap", which refers to an influential paragraph in a report by the British Committee on Finance and Industry of 1931. The Committee was chaired by the Scottish lawyer H.P. Macmillan and John Maynard Keynes was among its members. See Frost (1954) and Kenney (2014).

²⁵See also Knell (2013) and Ülgen (2014)

3 Failed venture investments (Vienna, 1920-1924)

After WWI, from May to October 1919, Schumpeter served briefly and without much success as the Austrian state secretary of finance. Thereafter, he resumed his job as a university professor in Graz, before trying to make his fortune as banker, investor, and industrialist in Vienna. His main projects included converting an old private bank to a joint stock company, of which he would become president, and participating in the construction of a new industrial group.²⁶ Both ventures reflect his personal pursuit of promoters' profits from 'creative response' to the changed economic environment after the war. While the incorporation of an existing firm was a typical vehicle of the promoter's profit at the time, building an industrial group without a substantially larger personal wealth to start with, was a venturesome bet on the actual working of his own theory.

Schumpeter was convinced that economic development, and even more so the postwar reconstruction, needed the initiative of creative entrepreneurs. His confidence in the economic viability of venture finance as a business model was based on his theory of temporary entrepreneurial profits from innovation, frequently realized as promoter's profit from the sale of new shares. But while his theoretic work directly relates to the poignancy of his strategic orientation as venture investor, it also relates to the major shortcomings in its practice. Schumpeter's striking underestimation of practical problems in running a business exactly corresponds to his lack of theoretical interest in questions of management, which he considered merely 'adaptive' responses to given data.

3.1 General economic background

Schumpeter started both ventures under difficult economic conditions. After the dissolution of the Habsburg Empire, the territories were split up among seven different states. The former common market of more than fifty million inhabitants was divided into small national territories, where the political and economic elites thrived for economic autarchy. Since the central powers had fought the war until complete economic exhaustion set in, the GDP had dropped by some 40 percent and capital stocks were depleted. At the same time, war finance, post-war fiscal deficits, imbalances of foreign trade, and expansionary monetary policies led to hyperinflation in most of the CEE. Monetary and capital markets were disturbed. Austria experienced hyperinflation in 1921 and 1922, resulting in a devaluation of the Crown to one fourteen thousandth of its pre-war value. During this period, the Crown hardly fulfilled elementary money functions as a medium for exchange, measure or store of value.

Hyperinflation was brought to a halt in October 1922 by means of an international loan to the Austrian government, which was organised by the League of Nations and guaranteed

²⁶These episodes are mentioned in the books on Schumpeter e.g. by Andersen (2011), McCraw (2007), Stolper (1994), Swedberg (1991), Allen (1991), and März (1983). For more detailed accounts, see Resch (1997 and 2013).

by several states. Austria had to commit to a strict austerity program and tight monetary policies.²⁷ In spite of contractive policies, the end of hyperinflation was followed by a bull market for company shares, because many investors believed that share prices had not kept pace with inflation and stocks were undervalued (Weber 1991, p. 145 ff; Bachinger, 2001, p 48 ff). A wave of speculation followed, which led to an overshooting of share prices until the bubble burst in late 1923. After a further wave of failed speculation against the French Franc at the turn of the year 1923/1924, there prevailed an extreme scarcity of loans and liquid means in Austria in 1924. A severe banking crisis which affected all sectors that depended on bank financing followed. After the number of banks had increased from 180 to 358 between 1919 and 1923, they declined again to 190 in 1927 (Stiefel 1993, p. 441).

3.2 The Biedermannbank

In imperial Austria it had been customary to grant former ministers of finance a bank license after they left office. Thus, Schumpeter could anticipate to obtain a concession. Due to his excellent social networks he was able to win a splendid group of industrialists and (former) aristocrats as investors.²⁸ In his first application for permission to found a bank, which he submitted on 19 February 1921, Schumpeter himself admitted that too many new speculative banks had been founded and that a banking crisis was imminent after the inflation era. But he asserted that his project would be completely different, because it would develop stable relations to foreign capital groups and be of valuable service to Austrian industrialists precisely in the foreseeable crisis.

The experts in the ministry of finance were unwilling to grant a license for an additional bank, but allowed to convert an existing private bank into a joint stock company (i.e. without increasing the number of banks).²⁹ In April 1921 Schumpeter submitted a plan to convert the traditional Biedermannbank into a joint stock company named M. L. Biedermann & Co., Bankaktiengesellschaft. Founded in 1791, Biedermannbank was the oldest Viennese bank and enjoyed an excellent reputation. Together with Schumpeter and other financiers, the owners of the private bank intended to go public at the Vienna Stock Exchange.³⁰

One of the biggest shareholders³¹ became the British Anglo-Austrian Bank Limited³²,

²⁷Butschek (2011, pp. 197-204); Good (2003); Resch (2010); Rothschild (1974); Sandgruber (1995, pp. 335-370).

²⁸Biedermannbank files 1, Letter of the applicants for a banking license to the Federal Ministry of finance, 19 February, 1921.

²⁹Biedermannbank files 1, Note by official Dr. Reissenberger.

³⁰Biedermannbank files 1, File Nr. 34021/21.

³¹In 1923, among the biggest shareholders were Arthur Klein (20%), Anglo-Austrian Bank (19%), Schumpeter (5.8%) and Gottfried Kunwald (5.7%), Max Chevalier de Anhauch (5%), Johannes Prince of Liechtenstein (3.3%), Countess Seherr-Thöess (3.3%), registered manager H. Kyrian (3.3%). Biedermannbank files 1, Minutes of the second general assembly, 4 August, 1923.

³²A large bank initially founded in 1864 under the name Anglo-Oesterreichische Bank. Due to capital losses in the course of the war, it had been converted into Anglo-Austrian Bank Limited in 1922, of which

Table 1: Biedermannbank – Key Figures in Billion Crowns 1921-1924

Key Figures	1921	1922	1923	1924
Balance sheet total	4.03	42.62	264.25	135.86
Shares (nominal)	0.24	1.00	2.50	2.50
Agio fund and reserves	0	0.92	32.71	2.2
Profit	0.08	3.53	9.61	0.66
Securities	0.24	3.00	16.23	9.02
Syndicates and capital contributions	0.2	2.38	16.63	14.21
Bank deposits	3.52	12.21	13.87	11.50
Debtors	0.02	24.52	203.77	84.76
Bills of exchange	-	-	10.39	9.46

Source: Biedermannbank files 1; business reports of Biedermannbank 1921-1924.

which intended to use Biedermann for dealings in the local currency (Crowns). During the following years, it turned out that Biedermannbank developed in a much more independent manner than had been intended by the Anglo-Austrian Bank.³³ Schumpeter became president of the new joint stock bank and was successful in gathering a group of renowned financial experts, business people and members of old and new elites together as investors and board members.

The structure of shareholders provided for a somewhat contradictory strategic orientation. On the one hand, Schumpeter and his colleagues were in favor of industrial investments. On the other hand, the largest single shareholder, the Anglo-Austrian bank, was oriented towards so-called “English banking”, which preferred liquid asset categories such as cash, deposits at other banks, money at call or short notice, discount of bills, overdrafts and advances, and avoiding long-term commitments in new ventures and industrial investments.³⁴ The charter of the firm and the first business reports reveal that Biedermannbank at the same time promised liquid investments and the provision of capital to young industries. Achieving both aims turned out to be impossible, notably under the given difficult economic circumstances.³⁵

The ambiguous strategic orientation resulted in an inconsistent timing of actual oper-

the Bank of England acquired 53%, a British bank consortium 17%, and former Austrian shareholders 30%. The headquarters were re-located to London, while the former central office in Vienna became a local branch. One of the negotiators on the Austrian side was Dr. Wilhelm Rosenberg, who became head of the Viennese branch (Natmeßnig, 1998, pp. 172-267).

³³Biedermannbank files 3, Statement of Dr. Simon from Anglo-Austrian Bank; Collection of investigation results, Copy No. 6, pp. 17 f.

³⁴For the traditions of ‘English Banking’, see Collins (2012, pp. 92-122). A differentiated picture is provided in Cottrell (1994, pp. 1137-1161).

³⁵Biedermannbank files 1, Charter of Biedermannbank and Business Report for 1922.

ations. At the beginning, i.e. during the years 1921 to 1922, the bank avoided monetary speculations, but invested a relevant share of assets in very liquid form, for example, as deposits at other banks. However, the bank also participated in capital increases and/or conversions to joint stock companies of around a dozen, mostly medium-sized industrial firms and several banks in Austria, Hungary, Czechoslovakia, and Germany. For the purpose of these international transactions, four branch banks were founded in Austria, Hungary and the Netherlands.³⁶ Most of the dealings were carried out together with the Anglo-Austrian Bank or in syndicate participation. Among the industrial companies, there were hardly any technology oriented firms. However, most of them tried to exploit new business opportunities on a national level after the separation of the common market of the Habsburg Empire.³⁷

The balance sheet for 1922, however inaccurate documents of this kind may have been, reveals some insights into the structure of the business. At the end of the year, 57% of the assets were debtors, which meant loans to customer firms or personal customers. Some 13% were held as syndicate participations and securities, and 29% as deposits at other banks. While the high share of bank deposits may evoke a picture of high liquidity, the results of the first years of business activity were quite meager. While other banks and speculators took advantage of inflation and currency turbulences, the Biedermannbank business strategy of investing in a group of firms (equity and loans) and holding liquid deposits at other banks yielded somewhat disappointing results. In the course of the business year, inflation had deteriorated the value of the Austrian Crown to one thirtieth while the total balance sum of Biedermannbank only grew by a factor of 10. In spite of two capital increases³⁸, by the end of 1921 share capital and reserves had shrunk in real terms to 58% of the value and the equity quota had deteriorated from 6 to 4.5%.

In fact, 1923 brought considerable changes to the direction of business. One reason was that Anglo-Austrian Bank decreased its participation in CEE business.³⁹ Biedermannbank lost the backing of the big British institute, but gained freedom for a shift of business activities towards more speculation and venture finance. During the business year 1923, the total balance grew by 520% and a remarkable shift of the asset structure occurred. The share of bank deposits was reduced from 29 to 5%, while debtors increased from 58 to 77%. The weight of securities and syndicate participation remained stable, which meant

³⁶The four banks were Internationale Handelsbank, Austro Holländische Bank, M. L. Biedermann & Co. Bankkommanditgesellschaft Budapest and Wiener Handelskreditbank AG.

³⁷Among these industrial firms were Riva Seifenindustrie AG, which specialised in the import substitution of soaps and perfumes, Mefra Aktiengesellschaft (thread production), and lacquer factories in Austria, Hungary, and Czechoslovakia. Another newly founded firm, Rhombus Verlags AG, offered cheap editions of classical books. In Hungary factories processed domestic agrarian raw materials. For a comparative overview of firm strategies in Austria, Czechoslovakia and Hungary after 1918, see Resch (2010, pp. 336-369).

³⁸Nominal capital was raised in January 1922 from 240 to 500 million Crowns and in September/October 1922 to 1 billion Crowns. Compass 1924, pp. 317.

³⁹Weber (1991, pp. 376-392), Natmeßnig (1998, pp. 249-264).

that in absolute terms they grew by a factor of six. Due to two further capital increases in 1923, the equity quota indicated in the balance sheet even rose from 5 to 13%.⁴⁰ However, by the time this balance was presented to the general assembly on 27 September 1924, it was already obvious to informed experts that it contained a lot of embellishments.

From autumn 1923 on, the increased investments in the industrial group (securities and credits) became extremely worrisome. After the peak of the bull market in late summer, prices of shares deteriorated and most of the small industrial ventures turned out to be hardly viable. Furthermore, due to massive private benefits of shareholders and functionaries the capital increases of the bank had not strengthened the bank as much as would have been possible. The question of who would appropriate the profits achieved by the issues of new shares became evident as a severe corporate governance problem.

At first glance, the share placements in autumn 1922 and in 1923 significantly increased the equity base of Biedermannbank by a total nominal value of 2.5 billion Crowns. However, a closer look reveals serious flaws. In the course of the issue of new shares in November 1922 and April 1923 with a total nominal value of one billion Crowns, the bank received some 6.3 billion Crowns while the development of the stock prices would have allowed for much higher earnings. Both of the issues were first relinquished to the old shareholders and to a syndicate of leading functionaries at a price far below the actual share quotation. Due to this practice, shareholders and syndicate members (at least in theory) acquired some 12 billion Crowns of a potential additional promoter's rent (i.e. if they had sold their shares at the market price), which was twice as much as the influx of new capital left over for the bank. Among the biggest beneficiaries were Anglo-Austrian Bank and some board members of Biedermannbank, among them Schumpeter.⁴¹ It must be added that the syndicate members did not sell off all the shares they got at a discount, and therefore a big lump of their capital gains was again lost when quotations deteriorated in late 1923.

In the course of the fourth capital increase in summer 1923 advance sales for shares slowed and the syndicate should have fulfilled its obligation to take over the newly issued stocks at the stipulated price. At the same time, other speculative dealings of the syndicate members failed due to decreasing stock quotations and they were unable to meet their obligations. Beyond this, they carried out massive support purchases of Biedermann shares financed by an additional loan from the bank. At the end of the year, the syndicate had accrued bank debts to the extent of some 30 billion Crowns, which in fact absorbed more of the means than Biedermannbank had gained in the course of the last issue of shares. In the balance sheet this procedure was accounted for as an increase of equity and an increase of debtors by some 30 billion Crowns. In the books an interest rate of 36% was calculated for the loan, which means that these interest earnings alone would have been the largest part of the entire profit reported for this year. The enormous amount of dubious claims against the syndicate, losses in equity holdings and doubtful financial solvency of

⁴⁰Biedermannbank files 1, Business Reports for 1922 and 1923.

⁴¹Biedermannbank files 2, Investigations by Dr. Heinrich Wittek and Georg Stern.

many other customers meant that, in fact, in early 1924 Biedermannbank probably had negative equity capital. The most important factor which allowed it to survive was that public authorities held large deposits with the bank thanks to good connections of the management to leading state functionaries.

Schumpeter was personally massively indebted to the bank he was president of due to failed speculations against the French Franc, his participation in the syndicate and losses in connection with his industrial ventures described below.⁴² In early 1924 most Austrian banks suffered from similar problems and a massive banking crisis occurred. While Schumpeter had foreseen this banking crisis after the end of the inflation period in his application for the bank license, he had not been able to steer his own bank institution safely through this period. Instead, he had contributed to its critical status through failed speculations and personal debts.

A government committee led by Georg Stern, a top ranking official in the ministry of finance, investigated the banks and produced a very critical report. In the course of these activities Stern uncovered the difficulties of Biedermannbank and the results of his investigation were presented in a blatant way in Vienna's tabloid press in June 1924, just when the management was working out a scheme for financial restructuring (Treichl, 2003, pp. 34-36). Initially, Schumpeter remained president of the bank, but in board meetings vice-president Gottfried Kunwald dominated its further development. Braun-Stammfest and a few other board members already resigned in June due to "overstressing with other agenda". Schumpeter's career as a banker finally ended when he had to resign as president of Biedermannbank in September 1924.⁴³ During the year 1925 new management attempted to relaunch the bank, but business did not develop well. In December 1926 liquidation was enacted, the investors suffered a complete loss and most of the creditors had to write off most of their outstanding debts (Resch 1997, pp. 83 ff).

3.3 The Braun-Stammfest industrial group

After 1919, the Viennese lawyer Rudolf-Maria Braun-Stammfest intended to found a group of innovative industrial firms to make use of new technological opportunities, given the depleted capital stocks in the now separate national markets of the former Habsburg Empire. From the beginning, Schumpeter, who had been Braun-Stammfest's school mate at the Viennese *Theresianum*, acted as an adviser, investor and prominent figurehead who helped to attract further financiers.

Braun-Stammfest and Schumpeter created a somewhat unorthodox scheme to raise capital for their ventures. They intended to incorporate the new firms as joint stock

⁴²See Lamoreaux (1996) on the historical practice of self-lending (i.e. bankers creating credit for their own equity investments) and its role for the industrial development of New England in the 19th century. Keister (1997) relates it to the more recent practice of insider finance among business groups in Japan, South Korea and China.

⁴³See Biedermannbank files 2 and 3 and Biedermannbank files 1, Minutes of XVIIth and XVIIIth meeting of the management board of Biedermannbank.

companies. However, to accelerate the bureaucratic and cumbersome procedure of founding such a company, they formed investor groups which were initially designed as completely informal closed end investment funds.⁴⁴ The investors received an interim certificate for their payment. They were contractually assured that the funds gathered would be used for the purposes of the firm under construction and that the interim certificates would be exchanged for shares of the same nominal value after the formal incorporation of the joint stock company. The new sites were to be built in provincial Austrian towns, where building areas were cheap and wages lower than in Vienna. With this approach, Braun-Stammfest and Schumpeter raised capital for factories to produce porcelain for industrial use (e.g. in energy generation), electro-technical components, glass and metallurgical products and anticorrosive paints.⁴⁵ The buyers of the interim shares hoped to avoid the effects of hyperinflation by investing their money in real assets.

In each of the four cases, first capital was raised for the informal funds. In this phase, Braun-Stammfest and Schumpeter made use of their good contacts to potential investors in Austria and CEE, and toured with a road show through several Austrian provincial towns, where they sold interim certificates to local investors such as pharmacists, medical doctors, professionals, industrialists and mayors. The collected money was invested in defunct sites which would be adapted for new purposes. Since adaptation began in the era of hyperinflation, the funds soon ran out of liquid means. Braun-Stammfest tried to assist with loans from his private funds and credit from third parties. Table 2 provides a short overview of the important development phases of the four companies. At the turn of the year 1922/1923, the porcelain site had already begun with production on a provisional basis, but could not yet cover current costs. The other three factories were still under construction. All of the four firms had run into expensive debt during the construction period and suffered from acute lack of liquidity, but the capital situation seemed to be tenable, as the money raised during the inflation era had been invested in real assets for productive purposes.

The ventures took on a more formal legal basis when the intended joint stock companies were founded during 1922 and early 1923. The interim shares were converted to stocks after which the companies were ready to further raise their capital. During the first months of the year 1923, the Austrian stock market was quite receptive due to the prevailing bull market, which offered good perspectives for further issues of shares. The most significant capital measures were an increase in the nominal capital of the porcelain company in June 1923 by some 7 billion Crowns; the electro-technical firm's gain of 3.2 billion Crowns in

⁴⁴To a certain degree this approach resembles the project companies for the construction of railways and utilities founded in England during the 19th and early 20th centuries. Cf. Casson, Godley (2010, pp. 211-242). For London as the financial center of the era, see Michie (2000).

⁴⁵The companies were Oberösterreichische Porzellanindustrie A.G., Glas-Industrie-Aktien-Gesellschaft Rudolfshütte, Oberösterreichische elektrotechnische Werke Aktien-Gesellschaft and Hainfelder Metallurgische Werke und Maschinenfabriks A.G. See Elektrotechnische Werke files, Glasindustrie files, Hainfelder Metallurgische Werke files, and Porzellan files.

Table 2: Formation of the Braun-Stammfest group

Company	Founding fund	Purchase site	Constitution	Start production
Porcelain (Wels, Upper Austria)	Autumn 1920	March 1921	18 Feb. 1922	Late 1921-22
Glass (Wels, Upper Austria)	February 1922	Mai 1922	22 Feb. 1923	-
Electro technical Factory (Wels, Upper Austria)	March 1922	Mai 1922	28 Dec. 1922	Dec. 1923
Metallurgical Comp. (Hainfeld, Lower Austria)	Spring 1921	June 1921	15 March 1922	1922 - 1923*

* In Hainfeld, production of machinery and forgings began at a low level in 1922. The production of anti-corrosive paint began in December 1923.

Source: Lawsuit Braun-Stammfest, expertises on the firms, interrogations, indictment and verdict.

October and the Hainburg metallurgical firm's gain of some 3.6 billion Crowns in December 1923.⁴⁶ Similarly, as with the capital increases of Biedermannbank, these issues allowed the incumbent shareholders and syndicate members to attain substantial gains at the cost of providing less industrial capital to the company itself.

However, construction work still absorbed enormous financial means and first attempts to start production even worsened the financial situation of the industrial group. In the electrical site, provisional production began in late 1923, but at a high initial cost, when the firm still had to gather experience and learn how to properly coordinate the machinery and production process. In Hainfeld, where production had already begun in 1922, extensive construction work was still necessary after having been hampered by conflicts among planning engineers and fluctuations in the managing personnel.⁴⁷

Due to acute financial needs, in spite of the capital increases Braun-Stammfest and Schumpeter sought new partners and investors and the industrial firms repeatedly required expensive short-term loans.⁴⁸ In March 1923 Braun-Stammfest and Schumpeter convinced the Viennese porcelain trader Wilhelm Rasper to invest in the porcelain site. Rasper, pursued an expensive strategy. He bet on further investments to realign the factory from electro-technical porcelain to elegant tableware he wanted to sell in his shop in Vienna. But

⁴⁶Porzellan files, File "Kap. Erhö. Von 250 auf 500 Mill.K."; Law Suit Braun-Stammfest, Indictment, pp. 1452; and Law Suit Braun-Stammfest, Verdict, pp. 1769v and pp. 1777.

⁴⁷Law Suit Braun-Stammfest, Police questioning Franz Haller, pp. 547 ff.

⁴⁸For example, in autumn 1922, a young scion from a well-known Bohemian family of industrialists named Fritz Mayer-Winterhalde promised heavy investments. Braun-Stammfest courted him for months and did not realize until May 1923 that he had fallen prey to empty promises.

he failed to increase production to a level that would have allowed for efficient economies of scale and the losses of the porcelain site dramatically increased (Resch, 2013, pp. 180 ff). Schumpeter tried to strengthen the financial situation by divesting parts of the industrial group, and found two potential buyers for the metallurgical site in Hainfeld. The deal would have yielded fresh capital to the remaining factories in Wels, but Braun-Stammfest refused to dispose of one of 'his' firms and this opportunity was missed.

Due to increasing financial stress, leading functionaries like Schumpeter, Braun-Stammfest and others borrowed own money and operated networks to obtain further loans, while the industries had to demand usury loans at an increasing amount. The most expensive loans came at an interest rate of five percent per week, which equals more than 1,100 % per year. Furthermore, to meet the acute need for funding of individual companies, Braun-Stammfest repeatedly took short-term loans from firms within the group with temporarily better liquidity to transfer the means to firms with the most urgent financial needs. So he personally became both creditor and debtor of the companies, and his central office in Vienna figured as a platform for short-term liquidity transfers between the companies. The maneuvers were often carried out on the fringe of the law. From late 1923 onward, this system developed towards a futile attempt to supply the firms with most urgent financial plight with means withdrawn from the other companies (Resch, 2013, pp. 187 f).

From December 1923 to April 1924 several attempts to issue new shares of the companies failed. Around the turn of the year 1923 to 1924, as a last desperate attempt for financial survival Braun-Stammfest bought a substantial share of Wiener Handelskreditbank, which was a subsidiary of Biedermannbank. He paid in shares of his industrial groups and promissory notes. As a new major shareholder he induced the bank to grant a further loan of 2 billion Crowns to the metallurgical factory in Hainburg which was used for the entire group. But these loans came at extremely high cost, while all of the companies continued to produce recurrent losses. As a consequence, at the end of January 1924, the entire group was at the brink of formal insolvency.⁴⁹ Braun-Stammfest was now unable to meet his personal debt obligations and was sued by the managers of the Wiener Handelskreditbank. In this situation he was able to convince the Wiener Kaufmannsbank to grant one last loan to avoid the imminent collapse of the group.

In April 1924, a last financial injection was made possible by Schumpeter. In December 1923 he had participated in a syndicate for a last issue of the glass factory which failed. The syndicate members refused to fulfill their obligations to pay for the shares that could not be placed on the market. They argued that the conditions of the placement had been changed immediately before the subscription period, which had rendered the original agreement on underwriting invalid. Since Schumpeter personally still wanted to contribute to the project's survival he was moved to issue a personal loan guarantee for a last credit granted by Wiener Kaufmannsbank of 1.8 billion Crowns.⁵⁰

⁴⁹Law Suit Braun-Stammfest, Verdict, pp. 1776v.

⁵⁰Lawsuit Braun-Stammfest, Police questioning of Schumpeter, pp. 512v, 514.

In spite of all these last financial maneuvers, the financial breakdown was inevitable. In April and August 1924 charges were raised against Braun-Stammfest by Wiener Kaufmannsbank and a group of shareholders who felt betrayed. The lawsuit lasted five years and on 15 June 1929 Braun-Stammfest was convicted of fraudulent insolvency due to gross negligence. The verdict was a five-month suspended sentence. Three of the four firms were liquidated by 1927 with complete losses for the shareholders and massive losses for the creditors. The porcelain factory was temporarily overtaken by the Viennese firm Augarten Porzellan and closed down in 1930 (Resch, 2013, pp. 193 ff).

3.4 Reasons for the failures and personal consequences for Schumpeter

In 1924 all of Schumpeter's financial adventures collapsed. Specific difficulties of the Austrian post-war economy as well as entrepreneurial flaws had caused this failure. While in Austria (hyper)-inflation prevailed, until 1922 Biedermannbank bet on liquidity, restraint of speculative dealings and financial relations to an affiliated group of industrial firms. To hold liquid means during this period meant suffering heavy losses due to hyperinflation. Just after the stabilisation of the Austrian Crown, Biedermannbank shifted towards more risky investments, loans for speculators, and industrial interests. While in 1922 the bank had missed the opportunities for speculative profits, heavy problems followed in 1923 due to dubious debtors and value losses of securities. The financed firms did not prove to be of stable or increasing value, and instead of earning the aspired promoters' profit heavy losses followed. Furthermore, due to corporate governance problems, capital increases of the bank channeled too much benefits to incumbent shareholders and syndicates rather than raising capital for needed productive investments.

For a long time, Biedermannbank was of two minds with respect to 'English banking' and venture finance. This led to an inconsistent strategy and timing of operations. In 1922, at the height of hyperinflation, speculative opportunities were missed and the emphasis on liquidity turned out to be very expensive. Conversely, in 1923 the bank committed means to investments in real assets that caused massive losses after the monetary system had become more stable. From 1924 onwards, painful reorganisation schemes became necessary, Schumpeter lost his job, and finally liquidation followed.

The industrial ventures of Braun-Stammfest and Schumpeter had first collected equity capital for start-ups and invested in real assets during hyperinflation, when debts would have rapidly devalued. (However, during this period loans were generally restrained and reserved for well-established firms). During the year 1923, the industrial group became increasingly dependent on expensive usury loans in spite of a few successful capital measures. The founders had underestimated the costs and difficulties of the start of production and had not sufficiently exploited the opportunities to raise equity capital during the bull market phase. From early 1924, the situation of the group had become untenable and expensive last desperate measures for survival took place before the collapse.

Compared to modern venture finance, Schumpeter's business activities had not yet con-

sidered at least two important aspects of how to cope with the uncertainty of respective investments. Modern venture capital funds disperse risk among several portfolio companies. In addition, the business model is fundamentally oriented towards equity capital. Loan capital would require deterrent high interest rates to compensate for losses of failed projects (the ‘down-side’), while equity allows for high returns in the cases of successful developments (the ‘up-side’), which can offset the losses of other ventures.⁵¹ However, in the case of the Braun-Stammfest group, capital was initially gathered for each individual firm, hampering the aptitude to re-allocate it with accordance to needs and opportunities of the single firms. With massive financial transfers taking place within the group of firms who had different shareholders, Braun-Stammfest sailed close to the wind, but to a certain degree approached the allocative rationale and operational independence of a modern VC fund. Together with the active search for outside equity investors and the closed-fund nature of the initial seed financing of the new companies, one may regard the attempt of Schumpeter and Braun-Stammfest a kind of ‘proto-venture-capital’ by *trial-and-error*.

Difficult years followed for Schumpeter personally. In May 1924 his total debt to Biedermannbank amounted to some 4 billion Crowns (400,000 Schillings). In addition, he was sued in July 1925 to discharge the liability towards Wiener Kaufmannbank. Interests included the amount of claim had increased to 199,000 Schilling (1.99 billion Crowns). By 1925, Schumpeter’s debts amounted to 6 billion Crowns⁵² or the equivalent of 2 million 2014 Euros, he had lost his position as bank president and he was a jobless economist. Schumpeter was heavily indebted to the bank and faced pending claims from the tax authorities for temporary speculative gains. His friend Kunwald helped him to navigate these challenges.⁵³ By providing a private loan, he enabled Schumpeter to settle his debts at Biedermannbank. In 1925, Schumpeter landed a new job as professor in Bonn and engaged in extensive activities, including presentations, speeches and articles in numerous journals and newspapers to earn money to cover his debts. However, personal tragedy and the legal and financial aftermath of his ventures again jeopardised his return to a more stable life.⁵⁴ In 1925 his wife died during childbirth and their child died shortly afterwards. Furthermore, risks of court cases and tax liabilities threatened his economic recovery. After 1925, the court carried out an examination of the industrial group’s case, during which Schumpeter was interrogated as an accused person three times. It was not clear until 1928 that he would not be formally accused of having committed a criminal offense.⁵⁵ The tax problems were also resolved in this year. Until then, Schumpeter lived under constant threat of losing his job as a professor due to a sentencing or even a formal charge, which

⁵¹See, e.g., Gompers and Lerner (2004); Antonelli and Teubal (2008).

⁵²See Bundesarchiv Koblenz (BAK), N/1186/31, letter from Schumpeter to Gustav Stolper, 22 February 1932 and letter from Gustav Stolper to Heinrich Herkner, 10 April 1931.

⁵³Nachlass Kunwald, Correspondence Schumpeter-Kunwald.

⁵⁴See the respective chapters in McCraw, 2007, Stolper, 1994, Swedberg, 1991 and Allen, 1991.

⁵⁵Lawsuit Braun-Stammfest, police questioning of Schumpeter and indictment; Personal Archive Ulrich Hedtke, Copies of two letters of Schumpeter addressed to “Liebe Gundl” (=Ottilie Jäckel) from the year 1927.

would have made a return to a stable bourgeois life impossible. However, in some cases he also took advantage of the situation. When the Wiener Kaufmannsbank threatened him with a further law suit to collect debts, he argued that this would lead to his complete insolvency and make him unable to pay anything. Leveraging this argument, he managed to negotiate a favorable compromise, stipulating that he had to pay back 52,000 instead of 199,000 Schilling.⁵⁶ After Schumpeter had unwisely ran into such heavy debts, he proved a brilliant negotiator in settling them. By the time he moved to Harvard in the early 1930s he had already overcome most of his financial difficulties.

4 Teacher of venture finance (Harvard, 1927-1950)

4.1 The money book

Schumpeter escaped what would have been inevitable and humiliating social degradation in Vienna by successfully returning to his academic work, first in Bonn in 1925, and then, after two transitional appointments, at Harvard from 1932 onwards. Returning to his intellectual endeavour, his ambition to develop a dynamic theory of money and banking was undiminished. In Schumpeter (1917/18) he had already emphasised the role of money as a clearing system and elaborated an expenditure-based approach that contrasted with traditional quantity theory.⁵⁷ During his years in Bonn he began developing a general treatise, in which he expanded on the previous themes, added new chapters on such diverse aspects as the history of monetary thought, the sociology of money or index numbers, and aimed to draft detailed financial flows between the different economic actors, such as households, firms, banks, or the central bank. But progress was slow, as a considerable portion of his time and attention was absorbed by public speeches and shorter articles, which he pursued to pay off his debts. Further delay was caused by the aforementioned personal tragedies, which thoroughly unsettled his characteristic optimism and self-confidence. Then appeared Keynes' *Treatise on Money* (1930). In public, Schumpeter acknowledged it a 'splendid achievement', whereas in private he believed that Keynes had appropriated some of his ideas without attribution (McCraw, 2007, p. 155). In any case, Keynes had raised the bar for another endogenous theory of money to strike the profession as profoundly novel. Schumpeter never gave up on his plans for the 'money book', but despite several premature announcements of its publication, the treatise was never finished. Only an incomplete German version of the manuscript was posthumously published in 1970. An unpublished translation and three additional chapters are stored at the Harvard University Archives.⁵⁸

⁵⁶Nachlass Kunwald, Correspondence Schumpeter-Kunwald.

⁵⁷Schumpeter's *income theory* of money owes much to Wieser and Wicksell. Rejecting the quantity theory's general assumption of full employment, he substituted total expenditures, and hence the aggregate money income, for the total supply of money. Price reactions depend on the elasticity of output, hence on the degree of capacity utilisation, and have a differential impact on heterogeneous agents.

⁵⁸See Naderer (1990) for an overview of Schumpeter (1970). Messori (1997) argues that its title would have been 'Theory of Money and Banking'. Discussing the additional chapters missing in the German

Despite the enormous effort he had invested, Schumpeter considered the book a failure.⁵⁹ As did Rothschild (1973), when commanding respect for Schumpeter’s ‘heroic’ decision not to publish it. Tichy (1984) appreciated the originality and relevance of Schumpeter’s contribution, but considered its generalisation into a genuine dynamic theory a vain endeavour and pointed at Schumpeter’s unlimited ambition and striving for perfection as the source of failure. Similarly, we conclude that Schumpeter’s strict reduction to phenomena triggered by innovation, i.e. the ‘venture’ aspect in finance, had left many questions of a comprehensive monetary theory unanswered. Conversely, his later attempt to expand it into a general theory of money and banking strays into long-winded and detailed discussions, which demonstrate much intellect and effort, but add little novelty to his more radical and compelling earlier presentation.

4.2 The rise of venture capital

Before we can close our considerations of Schumpeter and venture finance, there is one more aspect to add: the striking rise of modern venture finance in Schumpeter’s immediate geographical and intellectual environment during his years at Harvard. After New York, Boston had become one of the major financial centers in the US. It had participated in the boom of investment banks, which mainly focused on the issue of public debt, railway bonds, mergers and the underwriting of large incorporations, and maintained close ties with commercial banks. Facing the severe crisis of New England’s textile and garment industry, a critical debate about the financing conditions of new entrepreneurial ventures was already underway (Kenney, 2014). Even though the industrial elite had played a role in the foundation of many private banks, those primarily served to provide working capital and other short-term commercial credit to established businesses or underwrite their bond issues. As a consequence, up to the 1920s, personal investments by wealthy individuals tended to be the only source of external venture finance in the U.S..⁶⁰ Those were typically seeking long-term dividend income and not chasing the temporary promoter’s profit, whereas capitalised earnings as practiced by institutional investors were often regarded with suspicion.⁶¹

The situation changed in the 1920s, when prior institutional reforms of the New York

edition, he reports that Tichy (1984) was the first to notice its incompleteness.

⁵⁹McCraw (2007, p. 155) reports that Schumpeter himself “judged the whole effort ‘a thoroughly bad performance’”, even though he had “poured endless hours into the book”. The importance of the matter to him was evident in a letter written two months before his death, in which Schumpeter expressed his intention to finish the money book within “a year or two” (Hedtke and Swedberg, 2000, p. 391).

⁶⁰According to Lamoreaux et al (2007, p. 40) “formal financial institutions did not play a leading role in the creation of new enterprises. Instead, entrepreneurs seeking to exploit new technologies typically raised capital directly from wealthy individuals.” See also Lamoreaux and Sokoloff (2007) or Klepper (2007).

⁶¹“Although venture capitalists today often make their profits by taking firms public and then cashing out their investments, that does not seem to have been the practice in the early twentieth century. To the contrary, investors in start-up enterprises appear to have taken their profits over the long run in the form of dividends on their shareholdings” (Lamoreaux et al., 2007, p. 45f). See also Carosso (1970, p. 76).

Stock Exchange, the growth of intangible capital, the rising demand for common stock and the growing interest of a new group of investment bankers had rendered the pursuit of capital gains in place of dividend income increasingly attractive. For a short period, the resulting stock market boom also helped to facilitate entry in emerging industries, such as radio or aviation, which were able to capture the public imagination.⁶² But the crash of 1929 radically turned the tide. New laws and regulations no longer strove to enable venture finance, but rather to tame and constrain potential sources of financial instability and corruption. During the Great Depression of the 1930s “Wall Street’s pain was amplified into Main Street’s agony” (Hsu and Kenney, 2005, p. 581). Political concerns about the financing of small and new enterprises were growing, and various committees, proposals and initiatives were set up, some promoting public initiatives, others the formation of local capital trusts, an investment corporation under the aegis of the Federal Reserve, or a privately owned national industrial credit corporation.⁶³

One particularly influential initiative was the New Products Committee appointed by the New England Council in 1939. According to Ante (2008, p. 76), it “assembled the brain trust of individuals who would eventually pioneer the venture capital industry”, among them MIT’s president Karl Compton and Georges Doriot from the Harvard Business School (HBS). Doriot headed a subcommittee on Development Procedures and Venture Capital. He also joined Enterprise Associates Inc., which started as an informal group to get investors involved with scientists. But what could have become the birth of modern venture capital was abruptly aborted with the outbreak of WWII.

After the war, time was finally favourable, and in 1946 alone three significant venture capital operations were formed. The first was J.H. Whitney & Company, financed by a wealthy family but not focusing on technology companies in particular.⁶⁴ In contrast, the *Rockefeller Brothers, Inc.*, owned by the famed siblings and run by Laurance S. Rockefeller, had a deliberate focus on science and technology companies. From 1932 to 1934 Laurance had attended Harvard Law School, only to decide not to pursue his anticipated career as lawyer. Instead, his interest had turned to venture capital, for which he had “provided the initial spark in the 1930s” (Gupta, 2000, p.107). In 1938 and 1939, two spectacular investments in the young aviation industry had demonstrated his instinct for long-term capital gains, the first one leading to the foundation of Eastern Airlines, and the other enabling “an unknown plane designer, J.S. McDonnell” to found the Aircraft Corporation by the same name.⁶⁵

⁶²See Carosso (1970), Baskin and Miranti (1997), Neal and Davis (2007), Nicholas (2008), or O’Sullivan (2007).

⁶³See Liles (1977), Hsu and Kenney (2005) or Ante (2008).

⁶⁴It was the first company to call itself a ‘venture capital’ firm and had early success with the conversion of a surplus war munitions plant into fertilizer production. It is best known for its investments, e.g., in canned orange juice (Minute Maid) and the entertainment business.

⁶⁵Time (1959, p.50). In 1969 the limited partnership changed its name to Venrock, conducting early-stage investments in companies such as Intel or Apple, and is still specialised in emerging technologies (e.g. electronics, composite materials, optics or health care).

We cannot say, whether Schumpeter had any opportunity to leave a direct or indirect impression on Laurance Rockefeller. Laurance did not study economics, but during his two years in Harvard he apparently acquired an interest in venture finance. Despite his family background, he was not pre-disposed to pursue a similar career, first studying philosophy at Princeton and later law. What we can say, however, is that both Schumpeter and his wife Elisabeth entertained a special relationship with the Rockefeller family. Schumpeter successfully recommended numerous emigrant scholars for Rockefeller fellowships and helped “persuade the Rockefeller Foundation to fund what became the Center for Research in Entrepreneurial History” (McCraw, 2007, p. 471). The Foundation had also sponsored a book by Elisabeth, who “kept up a lively correspondence with public figures”, among them Laurance’s younger brother David and their father John D. Rockefeller, Jr. (ibid., pp. 328, 631). In 1950, David Rockefeller personally intervened to channel funds to Elisabeth for the editing of Schumpeter’s manuscript of the *History of Economic Analysis*.⁶⁶

Five years younger than Laurance, David Rockefeller also came to Harvard in 1932 and graduated with a Bachelor of Science in 1936. That same year he reluctantly decided to study economics, first studying one year with Schumpeter, then another year at the London School of Economics, and finally completing his PhD at the University of Chicago. In his memoirs, Rockefeller (2003, p. 79) recalls: “I was most influenced that year by Joseph A. Schumpeter. In fact, one of the intellectual high points of my graduate work was his basic course in economic theory.” Offering another compelling compliment to Schumpeter’s talent as a teacher, he writes: “I also discovered that I enjoyed the subject and maybe even had a flair for it” (p.80). That his praise was not due to mere politeness or political sympathy is evidenced in his far less enthusiastic reflection on Friedrich Hayek.⁶⁷ Of all the great economists with whom David studied, Schumpeter clearly stands out as the teacher who left the deepest impression on him. David later became president of the Chase Manhattan Bank. Referring to his early promotion of regional development banks in Latin America, Rockefeller (2003, p. 133) recounted: “The 1950 trip was in many ways a watershed event in my life. I saw that banking could be a truly creative enterprise – creative in the sense that my old professor Joseph Schumpeter defined the term”.

In his book on *Creative Management in Banking*, Rockefeller (1964, p. 33) called Schumpeter a “scintillating scholar” under whom he “had the good fortune to study” and situated his discussion firmly within Schumpeter’s framework of entrepreneurial growth. He took care to cover all of Schumpeter’s famous types of innovation, referring among others to the evolution of consumer credit (i.e. ‘new markets’), credit cards and charge-account banking (‘new products/services’), savings deposits (‘new resources’), computer aided automation (‘new processes’), or branching and merger policies (‘new industrial organization’). All of them came together in his vision of the ‘Bank of Tomorrow’, which was

⁶⁶Harvard University Archive (HUGFP – 66.90).

⁶⁷“Indisputably brilliant he lacked Schumpeter’s spark and charisma. He was a dull lecturer, very Germanic and methodical. . . . Personally, he was a kindly man whom I respected greatly” (Rockefeller, 2002, p. 83).

characterised by many of the now familiar features of electronic banking. But going beyond own innovations, creative banking is ultimately about “spurring the economy by lending to small and medium-sized businesses with growth potential, as well as to such new industries as aerospace and electronics” (ibid., p. 37). Industrial ventures are financed by loan instruments as well as direct equity investments through specialised subsidiaries, which also provide technical assistance and know-how. Eschewing the regulatory restrictions in the US, Rockefeller pursued such venture finance abroad, promoting joint ventures with private development banks. Thereby he clearly aimed for the promoter’s profit of temporary capital gains from founding new businesses: “Once an enterprise is soundly established, our investment subsidiary usually sells out its interest. By *rotating the capital*, we feel that it can do the most good” (ibid., p. 68, italics added).

Turning to the third significant venture capital operation of 1946, Karl Compton and the “old pals from the New Products Committee” (Ante, 2008, p. 107) reunited to found the *American Research and Development Corporation* (ARD), generally credited to be the world’s first institutional venture capital firm. Unlike operations owned by wealthy families, fundraising from institutional investors (insurance companies, investment trusts, etc.) became a crucial further dimension to manage. In retrospect, given the strong ties with MIT and the initial absence of competition from other venture-investors, the flow of promising new technologies and marketable ideas was probably the smallest difficulty to overcome. Managing such start-ups and implementing a business-oriented mindset might have been the more formidable challenge to which the management know-how of Georges Doriot was equally important. But generating and maintaining the confidence of investors in such a new financial adventure was probably the trickiest challenge. Here, the support from the network of prestigious leaders in the public and business community was an invaluable asset.

Despite unusually broad political support, financial backing was still precarious in the beginning and only gradually improved when the first and comparatively moderate returns from the first disbursements proved the overall validity of the business model. Furthermore, the portfolio of firms expanded unevenly over time.⁶⁸ When in 1957 ARD financed the founding of the Digital Equipment Corporation (DEC), it struck the first big success of the modern venture capital industry. After DEC’s initial public offering in 1966, the value of ARD’s investment skyrocketed by a factor of 500. The further history of ARD is covered in excellent articles and books.⁶⁹ Offering a remarkable validation of the economic viability and profound impact of venture finance, Kenney (2014, c.4/p.18) calls it the “purest incarnation of the Schumpeterian perspective”. The upshot is that ARD acquired its unique

⁶⁸ARD had funded 26 projects between 1946 and 1950, then 14 (1951-55), 28 (1956-60), 22 (1961-65), and 30 (1966-73). See Hsu and Kenney (2005) and Nicholas and Chen (2012).

⁶⁹See Lilles (1977), Hsu and Kenney (2005), Ante (2008) or Nicholas and Chen (2012). While ARD was a listed investment company, competitors soon established the limited partnership as a more advantageous corporate form. After Doriot’s retirement, ARD was merged with the industrial conglomerate Textron in 1971.

position in financial history by introducing institutional venture capital, rendering it a legitimate and proven investment tool, triggering spin-offs and many imitators in the market. Since then, venture capital has evolved into a highly specialised industry. The success of DEC established a spectacular showcase of what the promoter's profit can amount to. In contrast with Hilferding (1910), who had stressed the expropriation of industrial capital and rising power of financial organisations, ARD highlighted Schumpeter's brighter understanding of venture finance as an enabler of new enterprises and industries. Contrary to Schumpeter's own failed attempts in the 1920s, it became a showcase of venture capital through *trial-and-success*.

4.3 Enigmatic influence

What role did Schumpeter play in these later developments? The shared interest in the problem of entrepreneurial finance, together with the close geographic neighbourhood of Schumpeter at Harvard University, Doriot at HBS, and Compton at MIT would suggest some sort of personal interaction.⁷⁰ But apparently Schumpeter was not directly involved in the process. This is not surprising, given that he had already more than burnt his fingers and probably was too absorbed by his own theoretical work to take even notice (McCraw, 2009). One must also consider that, even if he had been invited, for example, to lend his academic standing to a supervisory board, his tainted reputation may have backfired with critical investors.

Given their close intellectual and geographical proximity, it is nevertheless likely that there was some sort of interaction, in particular between Schumpeter and Doriot. At least three observations support this conjecture. First, Schumpeter frequently visited the Baker Library at HBS, where he took special interest in the collection of business histories. The notorious cultural gap between 'pure science' at Harvard University and the more applied departments at the Business School⁷¹ was not an obstacle to him.⁷² Second, more than a mere professor of manufacturing at HBS, Doriot also took a keen interest in the larger macro-developments of society. Like Schumpeter, he was deeply engrossed in the topic of *Modern Capitalism. Its Origin and Evolution*, which is the title of a book by the French

⁷⁰Schumpeter's biographer Tom McCraw shared this intuition. In an e-mail from July 13, 2009, he replied to our very first inquiry into the matter: "Having researched the entire collection, I am sorry to report that I found no direct correspondence between Schumpeter and Georges Doriot, Karl Compton, or any other figure who pioneered venture capital in Massachusetts. Like you, I was a bit surprised at this." Frederic Scherer, a leading industrial economist and student of Doriot at HBS, confirmed the same intuition in a personal conversation in 2013 and told us that he also had previously been consulted by McCraw.

⁷¹At a speech in 1947, Doriot introduced himself with the following ironic clue: "I belong to the uneducated part of Harvard – across the river – on the Stadium and playground side" (Georges F. Doriot Collection, Vol. 125, No. 4, p. 9).

⁷²Schumpeter (1954, p. 944) considered business economics to be "basic to the work of the economist so soon as he goes beyond the most jejune assumptions about individual behavior, and co-operation between business and general economics is a primary necessity for both."

historian Henri Sée that Doriot translated into English in 1928.⁷³ Schumpeter (1946, p. 209) was familiar with the book and refers to both the French edition and its English translation. When discussing the merchants of colonial trade, the translation uses the phrase “venture the capital” (Sée, 1928, p. 56), which was neither obvious nor necessarily prompted from the French original.⁷⁴

Schumpeter frequently used the phrase ‘industrial venture’ in the context of large and long-term investments. In 1943 he used the term ‘venture capital’ in an article on “Capitalism in the Postwar Period”, i.e. well before it became more widely popular with the foundation and later success of ARD. In the same article, he reprised his optimism about economic opportunities in the post-war reconstruction period, reminiscent of the rationale for his own venture investments after WWI and certainly reassuring to any aspiring venture capitalist after WWII.⁷⁵ It suggests that Schumpeter was probably familiar with and sympathetic to the discourse in New England at the time.

The third reason to surmise an intellectual influence is the frequent use of vintage Schumpeterian ideas by Doriot and the co-founders of ARD. There are general similarities, e.g. with regard to Schumpeter’s distinction between statics and dynamics,⁷⁶ or his widespread notion of ‘creative destruction,’⁷⁷ which may not confer too much meaning for our case. But there are at least three further elements, which reflect Schumpeter’s theory of venture finance more specifically. The first is Schumpeter’s unique concept of the entrepreneur. Up to the present day, there are many competing theories of entrepreneurship (Peneder, 2009), and especially in the U.S. Frank Knight’s emphasis on the risk bearing

⁷³The translation was in co-operation with Homer Vanderblu. Originally published in 1926, the French title was *Les origines du capitalisme moderne*.

⁷⁴The precise origin of the term venture capital is still obscure. The earliest use has been traced to a report of the Investment Bankers Association in 1920, which however referred to tradeable industrial securities (Reiner, 1989). Doriot himself mentioned the example of *Ventures Limited*, a Canadian holding company in the mining business and founded in 1928 by the Harvard engineering graduate Thayer Lindsley (Georges F. Doriot Collection, Vol. 128, No. 2, p. 582). Kenney (2014) points at an influential Congressional hearing in 1938 of Lamont DuPont, president of DuPont Chemicals, graduate and trustee of MIT. DuPont was the first to use the term close to its contemporary meaning and in support of his anti-New Deal agenda.

⁷⁵See Schumpeter (1943, p. 182f): “Everybody is afraid of a postwar slump, threatening from a drastic reduction of military expenditure financed by inflationary methods as well as from mere reorientation of production. . . . Viewed as a purely economic problem, that task might well turn out to be much easier than most people believe.” The reason was that “the wants of impoverished households will be so urgent and so calculable that any postwar slump that may be unavoidable would speedily give way to a reconstruction boom. Capitalist methods have proved equal to much more difficult tasks.”

⁷⁶For example, in ARD’s mission statement, co-founder Ralph Flanders emphasised that “[t]o be confident that we are in an expanding, instead of a static or frozen economy, we must have a reasonable high birthrate of new undertakings” (Georges F. Doriot Collection, Vol. 114 – Confidential Book 2, f.13b).

⁷⁷Georges F. Doriot Collection, Vol. 122, No. 12, p. 81. Even when Doriot disagrees with the term, he reveals himself to be familiar with it: “Let us be careful that this is not an age of destruction instead of an age of building – instead of an age of construction” (Georges F. Doriot Collection, Vol. 127, No. 33, p. 566). Interestingly, in his later work Schumpeter was also careful to avoid the term creative ‘destruction’, replacing it with the less controversial creative ‘response’.

function has been very influential. Alternatively, one could also adhere to the older tradition and characterise entrepreneurs by the general undertaking of a business. However, Doriot explicitly opted for Schumpeter's concept, repeatedly characterising the entrepreneur as someone who "makes innovation happen."⁷⁸

The second such element is Hilferding's idea of a promoter's profit in terms of the capital gains realised by the issue of new shares, preferably via an IPO. Nobody appears to have used Hilferding's original notion, just as Schumpeter had absorbed it into his more general concept of entrepreneurial profit. But this cannot mask the fact that never before in history had the promoter's profit materialised more convincingly than with the emergence of the new venture capital industry.⁷⁹ There, it had indeed turned into a business model *sui generis*. Of course, capital gains were not new. But Doriot understood their elevated significance. In 1961 he resumed that "the most important discovery of the past 15 years is not a technical one nor a new one. It is the rediscovery of capital gains. ... Venture capital has become popular as a method of generating capital gains".⁸⁰

A final element suggesting an intellectual kinship between Schumpeter and Doriot was their mutual emphasis on the firm's need to match technical expertise and management skills as very distinct personal capabilities. In Doriot's words, "(t)here have been many fine scientists trying desperately to become poor businessmen. But scientific intelligence, we find, does not always result in business modesty. Success, I feel, would be attained more often if good men would only entrust their ideas to good operating men."⁸¹ Not only could this have been Schumpeter's own resume on his personal history, it also resonated with his general emphasis on the different functions and mindsets of inventors as opposed to entrepreneurs. But Doriot's quotes are even more reminiscent of Harvard economist Frank W. Taussig. The title of his book *Inventors and Money-makers* reads like a preview of ARD's ground-breaking collaboration between MIT and HBS: "Commonly the inventor is a poor manager. It is when allied with the business man that he is most likely to develop and perfect the usable devices" (Taussig, 1915, p.40). He further explained that "[e]very invention ... needs to be nursed. Some one must always advance funds. ... A *judicious*

⁷⁸See, e.g., the Georges F. Doriot Collection, Vol. 127, No. 33, p. 564. Further reminiscent of Schumpeter, Doriot stressed that the "entrepreneur is a man who wants to do something he has never done before and often something that has never been done before. ... The only assets are an idea and a man's ability. This combination will very shortly have to compete with companies having important assets including money – background – experience – trained men – a name and so on. This means that the entrepreneur ... has very little margin of error" (ibid.).

⁷⁹One may doubt whether the promoter's profit was ever that important in the banking operations which Hilferding knew. Although in Austria and Germany the larger universal banks were generally involved in industrial investments, they typically maintained their equity for longer periods, just as individual investors did in the US. The promoter's profit for the most part arose from incorporations with the issuing banks earning a share from their underwriting. See also Streissler (1982).

⁸⁰Georges F. Doriot Collection, Vol. 126, No. 3 (p. 209). In the same speech Doriot also criticised the growing excess and inflated popularity of venture capital, anticipating a bubble that would eventually burst.

⁸¹Georges F. Doriot Collection, Vol. 114 – Confidential Book 2 (f7c-7f and f.13i).

acquaintance of mine, much experienced in the world of affairs, has remarked to me that an inventor is always a ticklish associate, – unable to cease experimenting, ever in chase of something new, subject to ill-judged enthusiasms, not content to sit down and develop systematically what is at the stage or near the stage of working success. Certain it is that your inventor is rarely a good manager” (ibid., p. 34; italics added).

We may safely assume that Taussig’s ‘judicious acquaintance’ was Schumpeter. The two had exchanged correspondences as early as 1912, and during his extensive travel schedule Schumpeter had paid him a visit in 1913. They soon became friends. Taussig was clearly impressed and ultimately recruited Schumpeter to the Harvard faculty. In the fall of 1927, when Schumpeter arrived for an initial temporary appointment, the first course he taught at Harvard was on “Money and Banking” (McCraw, 2007, p. 187).

5 Summary and conclusions

We highlighted Schumpeter’s threefold affair with venture finance. Commonly known but underrated is his life-long striving for a general dynamic theory of money, developed from the singular angle of venture finance, which was a matter of high-flying and unfulfilled aspirations. Focusing on the venture aspects, however, one finds a fascinating, visionary and highly original combination of his theory of creative entrepreneurship and neglected heterodox views from the history of monetary thought. To him, all essentials of the monetary system originated in the creation and allocation of purchasing power to entrepreneurial ventures, thus opening new trajectories of industrial activity. Production and the monetary system co-evolve. Difficulties in the financing of innovation induce innovations in finance. These fuel the development, but can also foster instability and recurrent crises.

Little known and incompletely covered is his personal history as a failed venture investor during his years in Vienna. As a banker and proto-venture capitalist, he co-founded a number of industrial start-ups, trying to capitalise on his theoretical insights. Significantly, he confined himself to the investor’s part, while leaving the role of the entrepreneur to his partner. Unlike others, he was not a wealthy investor by inheritance, but pursued the promoter’s profit for his social advancement. Similarly to modern venture capitalists, he and his partner tried to manage a two-sided market of investor relationships and portfolio companies. The economic rationale seemed sound, but various causes contributed to their spectacular failure. Most striking was the incongruent strategic orientation with his most influential partners both at the Biedermannbank and in the industrial group. More generally, Schumpeter also lacked the advanced contemporary knowledge of corporate finance and the supportive institutional environment of the modern venture capital industry. In short, his vision and confidence had rushed too far ahead of his time and personal abilities.

After the ‘lost years’ of political and financial adventures, Schumpeter devoted all attention to his academic work. Still largely undetermined and enigmatic is his impact as a teacher of venture finance during his later years at Harvard. While we presented evidence

for the deep impact he had on the self acclaimed ‘creative banker’ David Rockefeller, we cannot ascertain, whether Schumpeter had e.g. any direct contact with the founders of ARD. Considering Schumpeter’s frequent visits at the Baker Library at HBS, this was however very likely the case with regard to Georges Doriot, whose speeches and letters on many occasions display a distinctively Schumpeterian bearing.

Venture finance by private individuals is as old as economic history. At least, this is what Schumpeter and other proponents of a credit theory of money claim, as did Georges Doriot. The later rise of venture finance is owed to the particular socio-economic environment that was actively shaped by New England’s business and civic leaders before WWII (Hsu and Kenney, 2005), the unprecedented opportunities for scientific and industrial expansion thereafter (Nicholas and Chen, 2012), and the personal ability of people like Georges Doriot. Lacking a direct involvement, the question of whether and to what degree Schumpeter contributed to this development, cannot be fully resolved.

Based on the evidence we have gathered, readers will form their own interpretation. Offering our conclusions, we consider that some personal interaction between Schumpeter and Doriot was very likely. But even if there had been no direct contact, Schumpeter almost certainly had an indirect impact on his intellectual environment. Research on social networks continuously demonstrates the power of concepts to move from one person to the next, going beyond one’s direct social ties (Christakis and Fowler, 2009). For example, certain ideas by Schumpeter that reportedly impressed the young David Rockefeller may have also thus affected the business vision of his brother Laurance. Similarly, Schumpeter’s mentor and friend Frank Taussig likely diffused ideas that struck a particular chord within his social networks, reinforced by the experiences and less articulate beliefs of others, which, further diffused, at some point ended as a shared and common truth among members of the area’s business and civic elite. Schumpeter’s case thus demonstrates, how radical ideas can evolve over a generation or two into the common concepts available to inform action.

Either way, we argue that Schumpeter contributed to the rise of venture finance by identifying its essential role in economic development, integrating Hilferding’s concept of the extraordinary promoter’s profit from early-stage capital gains, and providing it with a consistent and credible intellectual frame. Schumpeter and Doriot repeatedly emphasised that new and unproven ideas meet with adversities or suspicion and are regularly contested. Any feebleness, such as an inconsistent argument, is thus easily exploited by its opponents. Throughout its history, the founders of ARD displayed an astonishing confidence and belief in the social desirability and economic validity of their venture. Beyond their immediate reach, the success of ARD also depended crucially on the wider support of investors, the public media, aspiring entrepreneurs, and its own personnel. For all that, a strong and dependable vision must have served as intriguing signpost and powerful armour. But after his own failed experiment with venture finance, Schumpeter apparently did not contribute to the specific concept and organisation of venture capital that emerged in his close environment. This was clearly the achievement of more practical people.

The upshot is, that both intellectually and in his personal life Schumpeter related more

closely to the development of venture finance than is generally acknowledged. While the reception of Schumpeter's work revolves mostly around creative entrepreneurship and innovation, the financial counterpart of the (ad)venturous investor in 'novel combinations' was equally important to him. It even was his stronger passion, if we consider his failed trials as a proto-venture capitalist in the 1920s. Adding his stranded attempt for a dynamic general theory of money and banking, hyperbolic ambitions and consequent failure may explain the imbalanced reception of his work. It is highly undue, nevertheless. Schumpeterian development thrives on the relationship between the creative entrepreneur on the side of production *and* the venture investor, who represents the selection and enabling function of finance. Both must cooperate for the creation of rents from innovation, but also compete for its later distribution. If we neglect Schumpeter's venture theory of finance, the complex relationship of mutual dependence and conflict between the real economy and finance is entirely lost from his theory of development.

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McCraw T. (2009) = personal e-mail from July 13, 2009.

Nachlass Kunwald = ÖStA, AdR, Moskauer Akten, Fonds 616, Nachlass Kunwald, Konvolut Schumpeter. The Authors wish to thank Ulrich Hedtke who has allowed using a provisional version of his publication of the Schumpeter documents of Nachlass Kunwald.

Personal Archive Ulrich Hedtke = Persönliches Archiv Ulrich Hedtke, Copies of two letters of Schumpeter's addressed to "Liebe Gundl" (= Ottilie Jäckel) from the year 1927.

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